

**REMARKS/ARGUMENTS****Claim Rejections Under 35 U.S.C. § 112**

The Examiner rejected claims 6-8, 12, 14, 17, and 21 under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

As can be seen from the attached documents, the terms “hyperdispersant,” “active polymeric dispersant,” and “synergist agent” are well known in the relevant field. As can also be seen from the attached documents, those of ordinary skill in the relevant art would understand the % activity of the dispersants.

With respect to the term “synergistically effective amount,” the Federal Circuit, in *Geneva Pharmaceuticals, Inc. et al v. GlaxoSmithKline PLC, et al.*, (Fed. Cir. 2003) said that the term is a functional limitation. Therefore, it should not be considered indefinite.

**Claim Rejections Under 35 U.S.C. § 102**

The Examiner rejected claims 1-3, 7, and 8 under 35 U.S.C. § 102(b) as anticipated by U.S. Patent No. 5,320,672 to Whalen-Shaw (“Whalen-Shaw”). All the elements of claim 1 are not disclosed in Whalen-Shaw. For example, nothing in Whalen-Shaw discloses the pigment dispersant not having a binder. In the present invention, no additional resins or binders need to be added to the dispersant to make the invention effective. Whalen-Shaw requires another polymer to allow the dispersant to be ground or milled (see col. 3, lines 65-69). The present invention does not require the additional binder.

As recited in claim 2, Whalen-Shaw makes no reference of deionized water. Deionized water has a higher resistivity than common tap water, and acts as an acceptor for dielectric valences on a physical molecular level. Deionized water can have a resistivity up to 18.31  $\text{M}\Omega\cdot\text{cm}$ , compared to around 15  $\text{k}\Omega\cdot\text{cm}$  for tap water.

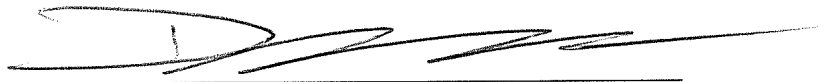
**CONCLUSION**

Applicant now believes that this amendment complies with 37 CFR § 1.121 and thus requests examination of this Amendment. Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Respectfully submitted,

**BROUSE McDOWELL**

April 5 2007  
Date



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### Trade Name - Solsperse® Hyperdispersants



Solsperse® hyperdispersants are used in surface coatings to improve pigment dispersion and to reduce interparticulate attraction within that dispersion. Solsperse hyperdispersants are widely used in applications where resins are a component of the millbase, for example, inks and paints.

Solsperse® synergists aid the Solsperse hyperdispersant during the dispersion of non-polar pigments.

For assistance in selecting the correct hyperdispersant for your paint, ink, or plastic application and for formulation recommendations, please log on to the Additives Selection Tool.

#### Applications

Digital Inks  
Energy Curable Inks  
Flexographic and Gravure - Aqueous  
Flexographic and Gravure - Solvent  
Lithographic, Oil-Based - Heatset  
Lithographic, Oil-Based - Sheetfed  
Additives for Paints and Coatings  
Plastics, Composites and Particle Treatment Additives

#### Technologies

Dispersants/Hyperdispersants






















#### Related Links

Additives Selection Tool  
SpecialChem4Coatings.com






### Product Comparison

Key for Product Availability ● Americas ● Asia-Pacific ● Europe/Middle East/Africa/India  
Please check with your local Noveon rep to see if product is registered for sale in your country.  
See technical data sheets for usage requirements.

Product	Availability	Type	Appearance
<a href="#">Solsperse 11200</a>	● ● ●	A solution of 50% active polymeric dispersant in Shellsol™ D40	Pale yellow to brown liquid
<a href="#">Solsperse 12000</a>	● ● ●	A 100% active pigmentary synergist	Blue powder

<u>Solsperse 13240</u>		A solution of 40% active polymeric dispersant in toluene	Amber liquid
<u>Solsperse 13240</u>		A solution of 40% active polymeric dispersant in toluene	Amber liquid
<u>Solsperse 13650</u>		A 50% active polymeric dispersant in DUP (diundecyl phthalate)	Yellow viscous liquid
<u>Solsperse 13940</u>		A solution of 40% active polymeric dispersant in 240/260 (°C) aliphatic distillate	Amber liquid
<u>Solsperse 16000</u>		A 100% active polymeric dispersant	Brown liquid
<u>Solsperse 17000</u>		A 100% active polymeric dispersant	Waxy solid/viscous liquid
<u>Solsperse 17250</u>		A solution of 50% active polymeric dispersant in toluene	Amber / brown liquid
<u>Solsperse 17940</u>		A solution of 40% active polymeric dispersant in 240/260 (°C) aliphatic distillate	Pale brown liquid
<u>Solsperse 18000</u>		A 100% active polymeric dispersant	Waxy solid / viscous liquid
<u>Solsperse 19000</u>		A 100% active polymeric dispersant	Viscous brown liquid
<u>Solsperse 19200</u>		A solution of 50% active polymeric dispersant in toluene	Amber/brown liquid
<u>Solsperse 20000</u>		A 100% active polymeric dispersant	Pale brown liquid
<u>Solsperse 20000</u>		A 100% active polymeric dispersant	Pale brown liquid
<u>Solsperse 21000</u>		A 100% active polymeric dispersant	Waxy paste / viscous liquid
<u>Solsperse 22000</u>		A 100% active pigmentary synergist	Yellow powder
<u>Solsperse 24000 SC/GR</u>		A 100% active polymeric dispersant	Amber waxy granules
<u>Solsperse 26000</u>		A 100% active polymeric dispersant	Fawn colored waxt powder
<u>Solsperse 27000</u>		A 100% active polymeric dispersant	Dark amber liquid
<u>Solsperse 28000</u>		A 100% active polymeric dispersant	Amber to brown viscous liquid
<u>Solsperse 3000</u>		A 100% active polymeric dispersant	Waxy paste / viscous liquid
<u>Solsperse 31845</u>		A solution of 45% active polymeric dispersant in	Amber brown liquid

		MPA/butyl acetate (5.5/1)	
<u>Solsperse 32000</u>	● ● ●	A 100% active polymeric dispersant	Waxy solid
<u>Solsperse 32500</u>	● ● ●	A solution of 40% active polymeric dispersant in n-butyl acetate	Pale yellow / brown liquid
<u>Solsperse 32550</u>	● ● ●	A solution of 50% active polymeric dispersant in n-butyl acetate	Pale yellow / amber liquid
<u>Solsperse 32600</u>	● ● ●	A solution of 40% active polymeric dispersant in Solvesso 100	Pale yellow / brown liquid
<u>Solsperse 33500</u>	● ● ●	A solution of 50% active polymeric dispersant in n-butyl acetate	Pale yellow / brown liquid
<u>Solsperse 34750</u>	● ● ●	A solution of 50% active polymeric dispersant in ethyl acetate	Water white / fawn liquid
<u>Solsperse 36000</u>	● ● ●	A 100% active polymeric dispersant	Off-white to yellow waxy solid
<u>Solsperse 36600</u>	● ● ●	A solution of 50% active polymeric dispersant in Solvesso 100	Pale yellow liquid
<u>Solsperse 37500</u>	● ● ●	A solution of 40% active polymeric dispersant in n-butyl acetate	Dark amber / brown liquid
<u>Solsperse 38500</u>	● ● ●	A solution of 40% active polymeric dispersant in MPA	Yellow liquid
<u>Solsperse 39000</u>	● ● ●	A 100% active polymeric dispersant	Brown liquid
<u>Solsperse 41000</u>	● ● ●	A 100% active polymeric dispersant	Pale brown liquid
<u>Solsperse 41090</u>	● ● ●	An un-saturated solution of 90% active polymeric dispersant in water	Water white / brown liquid
<u>Solsperse 42000</u>	● ● ●	A solution of 10% active polymeric dispersant in water	Milky white solution
<u>Solsperse 43000</u>	● ● ●	A 50% active polymeric dispersant in water	Viscous yellow liquid
<u>Solsperse 46000</u>	● ●	A 50% active polymeric dispersant in water	Yellow viscous liquid
<u>Solsperse 5000</u>	● ● ●	A 100% active pigmentary synergist	Blue powder
<u>Solsperse 53095</u>	● ● ●	A 95% active polymeric dispersant in water	Colorless / pale brown liquid
<u>Solsperse 54000</u>	● ● ●	A 100% active polymeric dispersant	Dark amber liquid
<u>Solsperse 71000</u>	● ● ●	A 100% active polymeric	Yellow viscous liquid

<a href="#"><u>Solsperse 8000</u></a>		dispersant A 100% active polymeric dispersant	Brown viscous liquid
<a href="#"><u>SOLSPERSE 8200</u></a>		A 100% active polymeric dispersant	Amber brown viscous liquid
<a href="#"><u>Solsperse 9000</u></a>		A 100% active polymeric dispersant	Viscous liquid / waxy paste
<a href="#"><u>Solsperse RM50</u></a>		A 50% solution of a multi-compatible acrylic resin in MPA (methoxy propyl acetate)	Viscous amber liquid
<a href="#"><u>Solsperse RX50</u></a>		A 50% solution of a multi-compatible acrylic resin in xylene	Viscous amber liquid

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# SOLSPERSE® 41090

<b>Product type</b>	<b>An un-neutralised solution of 90% active polymeric dispersant in water</b>
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<b>Applications</b>	<ul style="list-style-type: none"> <li>• Water-based paint (inorganic pigments only)</li> <li>• Water-based ink (inorganic pigments only)</li> </ul>
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<b>Performance</b>	<p>SOLSPERSE 41090 is an un-neutralised solution of 90% active polymeric dispersant in water, which will improve pigment dispersion and stability in aqueous paints and inks.</p>
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In the above applications, the following benefits are achieved:

- Low foaming
- Increased pigment concentration
- Improved gloss / lower haze
- No detrimental effect on water resistance
- Improvements in flocculation resistance

<b>Incorporation</b>	The SOLSPERSE 41090 should be dissolved in the millbase resin / water before the addition of pigments.
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<b>Addition levels</b>	<p>Addition levels should be based on the surface area of the pigment / filler. The dosage level is typically 2mg active dispersant per metre squared of pigment surface area. This is simply the surface area divided by 5.</p>
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<b>Typical properties</b>	Appearance	water white/brown liquid	
	Flash point (°C)	approx. 184	
	Melting/pour point	approx. -5	
	Density (g/cm <sup>3</sup> )	approx. 1.09	
	Gardner Colour	7 max (on product)	
	Heavy Metals	Sb <20	As <20
		Ba <10	Cd <10
		Cr <10	Pb <10
		Hg <20	Se <20
		Zn <10	



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**Packaging and storage**

SOLSPERSE 41090 is packed in 25Kg and 200Kg plastic drums. Store cool and dry, under well-ventilated conditions. Keep container closed when not in use. Do not store in open, unlabeled or mislabeled containers  
Shelf life: 2 years

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**Regulatory status**

Monomers listed on EU EINECS and Philippines PICCS inventories

Polymers listed on US TSCA, Canadian DSL, Australian AICS and Japanese ENCS inventories

Polymers listed on Chinese inventory

Notified on Korean inventory

Contact Noveon for additional information

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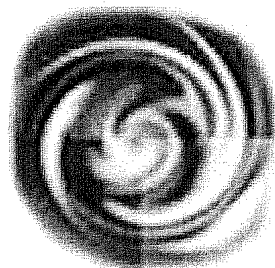
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### Solsperse® 5000 Pigmentary Synergist



Solsperse® 5000 is a 100% active pigmentary synergist agent used in conjunction with a Solsperse polymeric dispersant to improve pigment dispersion and stability in liquid organic media.

#### PERFORMANCE FEATURES

- Increased pigment concentration
- Improved rheological characteristics
- Improved pigment stabilization
- Increased tinctorial properties

#### Documents

[Technical Data Sheet](#)

#### Applications

[Architectural Coatings](#)[Automotive OEM/VR](#)[Coil Coatings](#)[Hyperdispersants](#)[Hyperdispersants](#)[Hyperdispersants](#)[Hyperdispersants](#)[Hyperdispersants](#)[Hyperdispersants](#)[Surface Treatment](#)[Thermoplastics](#)

#### Trade Names

[Solsperse® Hyperdispersants](#)

#### Related Links

[Additives Selection Tool](#)

## **SOLSPERSE® 5000**

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<b>Product type</b>	<b>A 100% active pigmentary synergist</b>
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<b>Applications</b>	<ul style="list-style-type: none"><li>• Automotive and Industrial paint (solvent-based)</li><li>• Offset inks</li><li>• Packaging Gravure inks</li><li>• Publication Gravure inks</li></ul>
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<b>Performance</b>	<p>SOLSPERSE 5000 is a 100% active pigmentary synergist agent used in conjunction with a SOLSPERSE polymeric dispersant to improve pigment dispersion and stability in liquid organic media</p> <p>In the above applications, the following benefits are achieved:</p> <ul style="list-style-type: none"><li>• Increased pigment concentration</li><li>• Improved rheological characteristics</li><li>• Improved pigment stabilisation</li><li>• Increased tinctorial properties</li></ul>
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<b>Incorporation</b>	<p>SOLSPERSE 5000 should be added to the polymeric SOLSPERSE / resin / solvent mixture and distributed evenly with stirring. Add the pigment in stages, then mill in the normal manner.</p>
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<b>Addition levels</b>	<p>The amount of SOLSPERSE synergist required is related to the particular pigment being dispersed; and is quoted as a ratio of polymeric / synergist.</p> <p>Used in ratios of 1:2, 1:4 or 1:9 SOLSPERSE 5000: Polymeric SOLSPERSE. See literature for guidance.</p>
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**Typical properties**

Appearance	blue powder	
Melting point (°C)	>300	
Density (g/cm <sup>3</sup> )	1.14	
Heavy Metals (ppm)	Sb <50	As <10
	Ba <15	Cd <15
	Cr <10	Pb <10
	Hg <15	Se <10
	Zn <50	

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**Packaging and storage**

SOLSPERSE 5000 is packed in 15Kg boxes. Do not store in open, unlabeled or mislabeled containers. Keep container closed when not in use. Store cool and dry, under well-ventilated conditions.  
Shelf life: 10 years.

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**Regulatory status**

Active listed on US TSCA, Japanese ENCS, Canadian DSL, Australian AICS and Philippines PICCS inventories.  
Notified for supply/import on EU (EINECS) including Switzerland.  
Active listed on Korean and Chinese inventories.  
Contact Noveon for additional information.

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### Solsperse® 27000 Polymeric Dispersant



Solsperse® 27000 is a 100% active polymeric dispersant which will improve pigment dispersion and stability in aqueous paints and inks.

#### PERFORMANCE FEATURES

- Nonyl phenyl ethoxylate (NPE)-free
- Increased pigment concentration
- Improved pigment wetting
- Better tinctorial properties
- Excellent storage stability

#### Documents

[Technical Data Sheet](#)

#### Applications

[Architectural Coatings](#)[Automotive OEM/VR](#)[Electronic and Advanced Materials](#)[Hyperdispersants](#)[Miscellaneous Treatment](#)[Surface Treatment](#)

#### Trade Names

[Solsperse® Hyperdispersants](#)

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